What is claimed:

1	1. A vector comprising from 5' to 3':				
2	a) a packaging sequence;				
3	b) a heterologous insert sequence or restriction sites for insertion of a heterologous				
4	sequence; and				
5	c) a 3' long terminal repeat (LTR) sequence,				
6	wherein at least two codons of the packaging sequence are altered so as to reduce				
7	formation of fusion polypeptides encoded by the packaging sequence or a portion thereof,				
8	and the heterologous insert sequence.				
9					
10	2. The vector of claim 1, wherein at least two ATG codons of the packaging				
11	sequence have been altered.				
12					
13	3. The vector of claim 2, wherein the ATG initiation codon of the packaging				
14	sequence and at least one internal ATG codon of the packaging sequence have been altered.				
15					
16	4. The vector of claim 1, wherein the packaging sequence is a gag sequence.				
17					
18	5. The vector of claim 4, wherein the gag sequence is an amino-terminal portion				
19	of the gag gene.				
20					
21	6. The vector of claim 4, wherein the gag sequence comprises the nucleotide				
22	sequence of SEQ ID NO:2, or a portion thereof.				
23					
24	7. The vector of claim 3, wherein at least two internal ATG codons of the				
25	packaging sequence have been altered.				
26					
27	8. The vector of claim 3, wherein the internal codon which is altered is the codon				
28	at residues 1097-1099 of SEQ ID NO:1.				
29					

30	9.	The vector of claim 3, wherein the internal codon which is altered is the codon					
31	at residues 1589-1591 of SEQ ID NO:1.						
32							
33	10.	The vector of claim 3, wherein the internal codon at residues 1097-1099 and					
34	the internal c	the internal codon at residues 1589-1591 of SEQ ID NO:1 have been altered.					
35							
36	11.	The vector of claim 2, wherein one, two or all of the nucleotides of the ATG					
37	codon(s) have been altered.						
38							
39	12.	The vector of claim 1, wherein the vector includes a heterologous insert					
40	sequence.	sequence.					
41							
42	13.	A vector comprising from 5' to 3':					
43	a) a p	ackaging sequence, wherein at least one ATG codon of the packaging sequence					
44	has been alte	has been altered;					
45	b) a heterologous insert sequence or restriction sites for insertion of a heterologous						
46	sequence; an	sequence; and					
47	c) a 3' LTR sequence, wherein the 3' LTR comprises a proviral recovery sequence.						
48							
49	14.	The vector of claim 13, wherein at least two ATG codons of the packaging					
50	sequence have been altered.						
51							
52	15.	The vector of claim 14, wherein the ATG initiation codon of the packaging					
53	sequence and at least one internal ATG codon of the packaging sequence have been altered.						
54							
55	16.	The vector of claim 13, wherein the packaging sequence is a gag sequence.					
56							
57	17.	The vector of claim 16, wherein the gag sequence is an amino-terminal					
58	portion of the	portion of the gag gene.					
59							

	1.0	The market of claims 14 and anning at least two interests ATC and any College			
60	18.	The vector of claim 14, wherein at least two internal ATG codons of the			
61	packaging sequence have been altered.				
62					
63	19.	The vector of claim 14, wherein the internal codon which is altered is the			
64	codon at residues 1097-1099 of SEQ ID NO:1.				
65					
66	20.	The vector of claim 14, wherein the internal codon which is altered is the			
67	codon at resi	dues 1589-1591 of SEQ ID NO:1.			
68					
69	21.	The vector of claim 14, wherein the internal codon at residues 1097-1099 and			
- 70	the internal c	codon at residues 1589-1591 of SEQ ID NO:1 have been altered.			
70 71 72 72	22.	The vector of claim 14, wherein all of the nucleotides of the ATG codon(s)			
		. ,			
73 74	have been altered.				
1.1/4	22				
	23.	The vector of claim 13, wherein the vector includes a heterologous insert			
□ 76 ➡	sequence.				
1 77					
75 76 77 77 78	24.	The viral vector of claim 13, further comprising a bacterial origin of			
79	replication.				
80					
81	25.	The viral vector of claim 24, wherein at least a portion of the bacterial origin			
82	of replication has been removed.				
83					
84	26.	The viral vector of claim 13, wherein the bacterial marker sequence is a			
85	bleomycin marker sequence.				
86					
87	27.	The viral vector of claim 13, wherein the proviral recovery sequence is			
88	located withi	n a portion of the 3' LTR which duplicates upon integration.			
89					
90	28.	A vector comprising from 5' to 3':			
- •	20.	· · · · · · · · · · · · · · · · · ·			

91	a) a packaging sequence, wherein at least one ATG codon of the packaging sequence				
92	has been altered;				
93	eterologous insert sequence or restriction sites for insertion of a heterologous				
94	sequence;				
95	c) a bacterial marker sequence, wherein the bacterial marker is less than 600 basepairs				
96	in length; and				
97	d) a 3' LTR sequence, wherein the 3' LTR comprises a proviral recovery sequence.				
98					
99	29.	A viral vector comprising:			
_100		a) a packaging sequence;			
<u></u>		b) a heterologous insert sequence;			
100 101 102 103 104 105		c) a bacterial marker sequence, wherein the bacterial marker sequence is less			
403	than 600 basepairs in length;				
104		d) a 3' LTR comprising a proviral recovery sequence,			
105		wherein the vector comprises and can express a heterologous insert sequence			
	greater than	about 8 kilobases in length.			
<u> </u>					
106 107 108	30.	The viral vector of claim 29, wherein the packaging sequence is altered at an			
109	initiation codon of the packaging sequence and at least one potential initiation codon of the				
110	packaging sequence.				
111					
112	31.	The viral vector of claim 29, further comprising a bacterial origin of			
113	replication.				
114					
115	32.	The viral vector of claim 31, wherein at least a portion of the bacterial origin			
116	of replication has been removed.				
117					
118	33.	The viral vector of claim 29, wherein the bacterial marker sequence is a			
119	bleomycin marker sequence.				
120					